COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Northern Virginia Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Fairfax County Board of Supervisors
9399 Richmond Highway Lorton, Virginia
Permit No. NVRO 70714

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Fairfax County Board of Supervisors has applied for a Title V Operating Permit for its Noman M. Cole Jr. Pollution Control Plant, Lorton, VA facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact:_____ Date:_____

Air Permit Manager:_____ Date:_____

Regional Permit Manager:_____ Date:_____

FACILITY INFORMATION

Permittee
Fairfax County Board of Supervisors
12000 Government Center Parkway
Fairfax, Virginia 22035

Facility
Noman M. Cole Jr. Pollution Control Plant
9399 Richmond Highway
Lorton, Virginia 22199

AIRS ID No. 51-059-0281

SOURCE DESCRIPTION

SIC Code: 4952 and 4953-

Noman M. Cole Jr. Pollution Control Plant (NMCJPCP) is a 67 million-gallon per day (MGD)(average volume) advanced wastewater treatment facility which incorporates preliminary, primary, secondary and tertiary treatment processes to remove pollutants from wastewater generated by residences and businesses in Fairfax County. The plant operates under a Virginia Pollutant Discharge Elimination System (VPDES) permit issued by the Virginia Department of Environmental Quality (DEQ), Water Division. The facility operates and maintains six multiple hearth sludge incinerators to dispose of biosolids generated during the wastewater treatment process. Four of the six units are used regularly. The remaining two are used as backup in the event of failure of one or more units, or when the remaining units in service cannot handle demand.

Each incinerator has an emissions control device that consists of one venturi scrubber and an impingement tray scrubber that both vent through one stack.

The facility is a Title V major source of oxides of nitrogen, and carbon monoxide. This source is located in a non-attainment area for pollutants that increase ozone. The facility was previously permitted under a Minor NSR Permit, issued on November 11, 1974, and modified on October 10, 1986.

COMPLIANCE STATUS

The facility has historically been inspected once every two years, and will be inspected annually after the issuance of this permit. The facility has been in compliance with emission limits over the previous three years.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The NMCJPCP has six Haskins multiple hearth sludge incinerators. The first two units (P-1 and P-2) were placed on line in 1970 as part of the original 18 MGD facility. Two additional incinerators (P-3 and P-4) were placed in service when the facility was expanded to 36 MGD during 1978. Units P-3 and P-4 were exempted from NSPS on the basis of the county executing a contract to commence construction prior to the effective date of NSPS. These units receive biosolids from the coil vacuum filters, which produce 18 percent total solids sludge cake.

Two multiple hearth incinerators (P-5 and P-6) were constructed in 1980 to recalcine lime as part of a chemical wastewater treatment process. This process was eventually replaced by another chemical treatment process, and the two incinerators were shut down. In 1990, incinerators P-5 and P-6 were converted to multiple hearth incinerators to act as backup units in the event of failure of the other incinerator(s), or when demand cannot be handled by the remaining units.

The four original incinerators (P-1 to P-4) were refurbished in 1986. The refurbishing of the incinerators was not considered a modification because they added air pollution control equipment to each unit, and reduced the cycle time for burning by installing sludge vacuum filters (to reduce the moisture content of the sludge from eighty-percent moisture to sixty-four percent moisture).

All incinerators currently have afterburners operating at 1,000 ^{0} F, as well as venturi and impingement scrubbers, to control particulate and gaseous emissions.

The emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Sludge Incinerators							
P-1	001	Hankins Seven Hearth Sludge Incinerator (began service in 1970)	45 dry tons/day	- SWEMCO Impingement and venturi Scrubber - North American Mfg. Co. - Impingement Tray Scrubber - Afterburner, Model 6131	PCD-1 and PCD-2	- PM - - - PM - - PM - - THC -	November 14, 1974
P-2	002	Hankins Seven Hearth Sludge Incinerator (began service in 1970)	45 dry tons/day	- SWEMCO Impingement and venturi Scrubber - North American Mfg. Co. - Impingement Tray Scrubber - Afterburner, Model 6131	PCD-3 and PCD-4	- PM - - - PM - - PM - - THC -	November 14, 1974
P-3	003	Hankins Six Hearth Sludge Incinerator (began service in 1978)	92 dry ton/day	- SWEMCO Impingement and venturi Scrubber - North American Mfg. Co. - Impingement Tray Scrubber - Afterburner, Model 6131	PCD-5 and PCD-6	- PM - - - PM - - PM - - THC -	November 14, 1974 and RACT Consent Agreement dated December 13, 1999

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
P-4	004	Hankins Six Hearth Sludge Incinerator (began service in 1978)	92 dry ton/day	- SWEMCO Impingement and venturi Scrubber - North American Mfg. Co. - Impingement Tray Scrubber - Afterburner, Model 6131	PCD-7 and PCD-8	- PM - - - PM - - PM - - THC -	November 14, 1974 and RACT Consent Agreement dated December 13, 1999
P-5	005	Hankins Eight Hearth Sludge Incinerator (began service in 1990)	38 dry ton/day	- SWEMCO Impingement and venturi Scrubber - North American Mfg. Co. - Impingement Tray Scrubber - Afterburner, Model 6131	PCD-9 and PCD-10	- PM - - - PM - - PM - - THC -	October 10, 1986
P-6	006	Hankins Eight Hearth Sludge Incinerator (began service in 1990)	38 dry ton/day	- SWEMCO Impingement and venturi Scrubber - North American Mfg. Co. - Impingement Tray Scrubber - Afterburner, Model 6131	PCD-11 and PCD-12	- PM - - - PM - - PM - - THC -	October 10, 1986

EMISSIONS INVENTORY

A copy of the 2001 annual emission update inventory is attached. Emissions are summarized in the following tables.

2001 Actual Emissions

	2000 Criteria Pollutant Emission in Tons/Year				
Criteria Pollutant	VOC	CO	SO_2	PM_{10}	NO_x
Total	3.82	98.22	4.11	4.99	118.60

EMISSION UNIT APPLICABLE REQUIREMENTS

A. Limitations

Condition 1: This condition applies the requirements of 40 CFR part 60, subpart O to incinerators P-5 and P-6.

Condition 2: This condition applies the requirements of 40 CFR part 61, subpart E to all incinerators on the facility.

Condition 3: This condition is derived from Chapter 40 Part II of State Rule 4-7 Emission Standards for Incinerators.

Condition 6: The mercury NESHAP applies to Emission Units P-1 through P-6.

Condition 7: This condition is derived from the opacity standard obtained from State Rule 4-7, and to strengthen the requirements for periodic monitoring.

Condition 14: This condition is derived from 40 CFR, Part 61, Subpart E to insure mercury vapors are condensed out of the effluent gas stream.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

B. Monitoring

The purpose of conditions 4 through 9 are to apply a periodic monitoring approach to provide a reasonable assurance of continuous compliance with the particulate matter standards in 40 CFR 60.152 and Rule 4-7for NOx RACT requirements in III.A.10 “good combustion practices”, III.A.11 Temperature monitoring, and III.A.12 O_2 monitoring, and III.A.5 for opacity standards.

Condition 4: The requirement to install, calibrate, maintain, and operate a continuous measuring device to measure and record oxygen content on the incinerator emission stack is required under 40 CFR 60.153(b)(2) for the purpose of monitoring appropriate emissions control. This regulation applies to Emissions Units P-5 and P-6, and is applied to Emissions Units P-3 and P-4 using 9 VAC 5-80-110 E to assure compliance to the same extent as 40 CFR 60.153(b)(2) for NOx control.

Condition 5: The requirement to install, calibrate, maintain, and operate a device to measure and record carbon dioxide content on the incinerator emission stack for the purpose of monitoring appropriate emissions control. This regulation is applied to Emission Units P-1 through P-4 to assure compliance with Condition III.A.3 particulate matter.

Condition 6: The requirement to install, calibrate, maintain, and operate a device to measure and record temperature at each hearth of each incinerator is applied to Emissions Units P-5 and P-6 under 40 CFR 60.153(b)(3). This requirement is applied to Emissions Units P-3 and P-4 using 9 VAC 5-80-110 E to assure compliance to the same extent as 40 CFR 60.153(b)(3) for NOx control.

Condition 7: This condition is for maintaining the efficiency of the scrubbers for the removal of particulate matter, and mercury removal. Based on the requirement of 40 CFR 60.153 (b)(1), the standard is applied to Emission Units P-1 through P-4 by means of 9 VAC 5-80-110 E to comply with minimum applicable condition requirements.

Condition 8: In absence of a regulation, 9 VAC 5-80-110 E was used to establish a condition to assure compliance with Conditions III.A.3, III.A.5, and III.A.6.

Condition 9: This condition is applied to Emissions Units P-5 and P-6 under 40 CFR 60.155(1)(i), and is applied to Emissions Units P-3 and P-4 using 9 VAC 5-80-110 E to assure compliance to the same extent as 40 CFR 60.155(1)(i).

Condition 10: In absence of an existing regulation, 9 VAC 5-80-110 E was used to establish a condition to assure compliance with Conditions III.B.7 and III.B.8.

Condition 13: This condition establishes a program to routinely monitor visible emissions for the purpose of providing a reasonable assurance of continuous compliance with the opacity limits in Conditions III.A.7 and III.A.8. If the emissions exceed the opacity limit, Condition 13 also states the corrective action steps to rectify the problem.

Condition 14: This regulation is applied to Emission Units P-1 through P-6 to assure compliance with Condition III.A.2, III.A.6, and III.A.14 for mercury emission control.

Condition 15: This regulation is applied to Emission Units P-1 through P-6 to assure compliance with Condition III.A.2, III.A.6, and III.A.14 for mercury emission control.

C. Recordkeeping

Condition 1, 2, 5, 9, 10, and 11 use 9 VAC 5-80-110 F as the basis for maintaining data recorded for the purpose of satisfying 9 VAC 5-80-110 E in Section III.B.(monitoring). Record keeping requirements were established using 9 VAC 110 F where the previous NSR permit did not.

D. Testing

Condition 1: In absence of an existing regulation, 9 VAC 5-80-110 E was used to establish a condition for compliance testing to demonstrate compliance with emission limits contained in Conditions III.A.3, III.A.4, and III.A.6.

Condition 2: In absence of an existing regulation, 9 VAC 5-80-110 E was used to establish a condition for compliance testing for visible emissions to demonstrate compliance with Conditions III.A.7, III.A.8, and III.B.12.

Condition 3: Oxygen and temperature monitoring for Emissions Units P-3 through P-6 are in place to monitor good combustion practices as stated in Condition III.A.10, and are applied to demonstrate compliance with reducing NOx emissions. Therefore, NOx shall be tested upon permit renewal to demonstrate compliance with emission standards.

E. Reporting

Condition 1: This condition applied to Emissions Units P-5 and P-6 under 40 CFR 60.155(a)(1), and is applied to Emissions Units P-1 through P-4 using 9 VAC 5-80-110 F to assure compliance to the same extent as 40 CFR 60.155(a)(1).

Streamlined Requirements

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110, that apply to all Federal operating permit sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions, including those caused by upsets, within one business day.

Comments on General Conditions

B. Permit Expiration

This condition refers to the Board taking action on a permit application. The Board referred to is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by ' 2.1-20.01:2 and ' 10.1-1185 of the *Code of Virginia,* and the "Department of Environmental Quality Agency Policy Statement NO. 3-2001".

This general conditions cites the entire Article(s) that follow:
B.2. Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Permits for

Stationary Sources
B.3. Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Permits for Stationary Sources

This general condition cites the sections that follow:
B. 9 VAC 5-80-80. "Application"
B.2. 9 VAC 5-80-150. "Action on Permit Applications"
B.3. 9 VAC 5-80-80. "Application"
B.4. 9 VAC 5-80-80. "Application"
B.4. 9 VAC 5-80-140. "Permit shield"
B.5. 9 VAC 5-80-80. "Application"

C. Recordkeeping and Reporting

Monitoring records shall be maintained to demonstrate compliance with the terms and conditions of this permit. Records shall be retained for at least five years from the date of the data collection, along with the support information of calibration and maintenance records and strip chart recordings for continuous monitoring instruments.
(9 VAC 5-80-110 F)

All results of monitoring in all requirements shall be reported to the DEQ no later than March 1st and September 1st of each calendar year.
(9 VAC 5-80-110 F)

F. Failure/Malfunction Reporting

Section 9 VAC 5-20-180 requires malfunction and excesses emissions reporting within 4 hours. Section 9 VAC 5-80-250 also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to this section including Title 5 facilities. Section 9 VAC 5-20-250 is from the Title 5 regulations. Title 5 facilities are subject to both Sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180, and 9 VAC 5-80-250. The report must be made within four day time business hours of the malfunction.

Please note there are two proposed regulation changes that could affect this condition. The requirement listed in section 9 VAC 5-20-180 to report excesses emissions within four business hours may be changed to require reporting of excesses emissions within six hours. The requirement listed in section 9 VAC 5-40-50 C and 9 VAC 5-50-50C to submit a written report of excess emissions on a quarterly basis may be changed to allow semiannual reporting.

In order for emission units to be relieved from the requirement to make a written report in fourteen days the emission units must have continuous monitors and the continuous monitors must meet the requirements of 9 VAC 5-50-410 or 5-40-41.

This general condition cites the sections that follow:

F.	9 VAC 5-40-50.	Notification, Records and Reporting
F.	9 VAC 5-50-50	Notification, Records and Reporting
F.1.	9 VAC 5-40-50	Notification, Records and Reporting
F.1.	9 VAC 5-50-50	Notification, Records and Reporting
F.2.	9 VAC 5-40-50	Notification, Records and Reporting
F.2.	9 VAC 5-50-50	Notification, Records and Reporting
F.3.	9 VAC 5-40-50	Notification, Records and Reporting
F.3.	9 VAC 5-50-41	Emissions Monitoring Procedures for Existing Sources
F.3.a.	9 VAC 5-50-41	Emissions Monitoring Procedures for Existing Sources

This general condition contains a citation from the Code of Federal Regulations as follows:

F.2.a 40 CFR 60.13 (h). Monitoring Requirements.

U: Malfunction as an Affirmative Defense

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in section 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see comments on general condition F.

This general condition cites the sections that follow:

U.2.d. 9 VAC 5-80-110. Permit Content
U.2.d. 9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction

INAPPLICABLE REQUIREMENTS

40 CFR 61, Subpart C, NESHAP for Beryllium. Subpart C was intended for a facility that uses beryllium or generates beryllium wastes and then disposes of it. Any beryllium found in the sludge is insignificant and incidental to main purposes of the sludge incinerators.

9 VAC 40 Chapter 40, Article 8, Fuel Burning Equipment: This does not apply to the incinerators. While the incinerator burners may use fuel to heat the sludge to combustion temperature, 9 VAC 40 Chapter 40, Article 8, Emission Standards for Fuel Burning Equipment Installation does not apply to the incinerators. Rule 4-8 was written for external combustion fuel burning equipment. Rule 4-7 specifically was written with PM emission standards from incinerators. Since Rule 4-7 does not limit SO2 emissions or reference Rule 4-8 applicability to incinerators, the Rule 4-8 PM and SO2 standards do not apply to the incinerators. Rule 4-8 could have been reviewed during the permitting process in 1974 to help establish SO2 emission standards for the incinerators (SO2 from fuel plus SO2 from sludge) in the NSR permit. Since the NSR permit did not list any SO2 emission limits, Rule 4-8 can not be used to back fill SO2 emission limits for the incinerators in the Title V permit.

9 VAC 40 Chapter 40, Article 4, Emission Standards for General Process Operations. Rule 4-4 was written for General Processes not covered by a specific type process listed in 9 VAC 40 Chapter 40. 9 VAC 5-40-240.D states, “The provisions of this article DO NOT apply to affected facilities subject to other emissions standards in this part.” The Article 4 PM and SO2 standards do not apply to the incinerators. Rule 4-7 was specifically written with PM emission standards from incinerators. Since Rule 4-7 does not limit SO2 emissions or reference Rule 4-4 applicability to incinerators, the Rule 4-4 PM and SO2 standards do not apply to the incinerators.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
DG-1	Parts Degreaser – Cold Cleaner (Mechanical Shop)	9 VAC 5-80-720 B	VOCs, methylene chloride	55 gal
DG-2	Parts Degreaser –	9 VAC 5-80-720	VOCs, methylene	40 gal

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
	Cold Cleaner (Mechanical Shop)	B	chloride	
DG-3	Parts Degreaser – Cold Cleaner (Mechanical Shop)	9 VAC 5-80-720 B	VOCs, methylene chloride	30 gal
DG-4	Parts Degreaser – Cold Cleaner (Building T)	9 VAC 5-80-720 B	VOCs, methylene chloride	25 gal
WW-1	Headworks	9 VAC 5-80-720 B	---	67 MGD wastewater
WW-2	Primary Settling Tanks	9 VAC 5-80-720 B	VOCs, chloroform, ethylbenzene	67 MGD wastewater
WW-3	Activated Sludge Tanks	9 VAC 5-80-720 B	VOCs, chloroform, ethylbenzene	67 MGD wastewater
WW-4	Mixed Liquor Channel	9 VAC 5-80-720 B	---	67 MGD wastewater
WW-5	Secondary Settling	9 VAC 5-80-720 B	---	67 MGD wastewater
WW-6	Equalization Tanks	9 VAC 5-80-720 B	---	67 MGD wastewater
WW-7	Tertiary Clarifiers	9 VAC 5-80-720 B	---	67 MGD wastewater
WW-8	Monomedia Filters	9 VAC 5-80-720 B	---	67 MGD wastewater
WW-9	Dechlorination	9 VAC 5-80-720 B	---	67 MGD wastewater
GS-1	Laboratory	9 VAC 5-80-720 A	Miscellaneous	---
GS-2	Mechanical Shop	9 VAC 5-80-720 A	Miscellaneous	---
GS-3	Welding Shop	9 VAC 5-80-720 A	Miscellaneous	---
GS-4	Electrical Shop	9 VAC 5-80-720 A	Miscellaneous	---
GS-5	Instrument Repair Shop	9 VAC 5-80-720 A	Miscellaneous	---
GS-6	Paint Shop	9 VAC 5-80-720 A	Miscellaneous	---
GS-8	Odor Control (13 Carbon Adsorbers)	9 VAC 5-80-720 B	None	---
P-1A and P-2A	Ash Baghouse (2)	9 VAC 5-80-720 B	PM/PM_{10}	---

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
P-3A and P-4A	Ash Baghouse (2)	9 VAC 5-80-720 B	PM/PM_{10}	---
LS-1	Lime Storage Baghouse	9 VAC 5-80-720 B	PM/PM_{10}	---
GS-9 through GS-17	Natural Gas-fired Boilers for Space Heating	9 VAC 5-80-720 C	VOCs, NO_x, SO_2, CO, and PM_{10}	< 10 MMBtu/hr
GS-18, GS-19 and GS-20	Diesel-fired Emergency Generators	9 VAC 5-80-720 C	VOCs, NO_x, SO_2, CO, and PM_{10}	< 6,667 hp
GS-21 through GS-23	Three Diesel Fuel Tanks for Emergency Generators	9 VAC 5-80-720 C	VOCs, NO_x, SO_2, CO, and PM_{10}	< 10,000 gal
GS-24 and GS-25	Two # 2 fuel oil tanks for backup fuel for the incinerators	9 VAC 5-80-720 C	VOCs, NO_x, SO_2, CO, and PM_{10}	<12,000 gal
GS-26 and GS-27	Two Natural Gas-fired Boilers for Space Heating	9 VAC 5-80-720 C	VOCs, NO_x, SO_2, CO, and PM_{10}	< 10 MMBtu/hr

[1]The citation criteria for insignificant activities are as follows:
9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application
9 VAC 5-80-720 B - Insignificant due to emission levels
9 VAC 5-80-720 C - Insignificant due to size or production rate

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

A public notice regarding the draft permit was in the June 28, 2002, edition of the Washington Times. Public comments were accepted from June 28, 2002, through July 29, 2002.